operation, but in the judgment of men doing obstetrics. I feel sure we can reduce the maternal death-rate if we would approach the problem from the following angle: Not so much from the stand that we should do a Caesarean section, but from the stand when should we not do a Caesarean section. If certain rules were laid down contra-indicating this operation, and the hospital requirement demanding consultation before this operation is permitted, I am sure the number of mothers dying from Caesarian section would rapidly diminish.

In my service at Mt. Zion Hospital a good many of our maternity cases are drawn from women who were born in Russia, Balkan States, Turkey, Armenia, Palestine and Egypt. We find our average of cases of contracted pelvis runs higher than at the University of California Hospital. The types we see are:

1. General contracted.
2. Flat rhachitic with wide contracted outlet.
3. Masculine type with contracted outlet.

Our working rule is as follows:

1. For elected and absolute clean cases we employ the classical Caesarean section, using the high incision.

2. For cases which have been given the test of labor or where membranes have prematurely ruptured and thirty-six hours have elapsed, or in cases where one or two vaginal examinations have been made, even under aseptic technique, these cases are considered as potentially infected, and we resort to the low cervical section.

3. All other cases not included under the above two heads, with the exception of the absolute indication, are not sectioned, but delivered from below, even if we have to resort to a craneotomy. I am happy to say our maternal mortality averages from 1 to 2 per cent.

CHARLES E. FRENCH, M. D. (Flood Building, San Francisco)—There are a certain number of women of the upper class, somewhat advanced in years, who request a Caesarean section rather than undergo the pains of labor. They know something of the operation, have perhaps seen its brilliant results in friends, and have been assured by medical men that in uncomplicated cases, if done before the onset of labor, it is no more serious than an interval operation for appendicitis. If the results of these carefully gathered statistics, taken from such a diversity of sources, were presented to such women they would be more reticent about having this operation. Nitrous oxid analgesia, with version or forceps, if necessary, means perhaps a little more pain, but at a greatly lessened risk.

I believe that a damaged heart is used as an indication for Caesarean more frequently than is absolutely necessary. I have been amazed more than once to see how well a badly damaged heart could accommodate itself to labor in patients who have refused a Caesarean. As an added argument in heart cases it is proposed to sterilize the patient at the same time. I think that this should be disregarded in making a decision to operate. We operate to save mother and child; the future should not be allowed to influence that object. If it is deemed best to sterilize her it can be done at a subsequent laparotomy with far less risk.

Doctor Coffey's contention that premature labor is not induced often enough should be strongly emphasized. The induction of labor several weeks in advance of full term in cases of moderately contracted pelves is preferable to a section at term. The mortality rate should be almost nothing and it is a simpler and safer procedure in the hands of the general practitioner who does the great bulk of the obstetrical work.

Doctor Breitstein's suggestion that it be a hospital requirement to have a consultation before a Caesarean operation is good. Why not also require every operator to report such operations to the monthly staff meeting for discussion, the same as we do with all mortalities?

EDWARD N. EWER, M. D. (251 Moss Avenue, Oakland)—Obstetricians who take pride in the art of their subject will agree that Caesareans are over-much the fashion. This condition came about largely through rather general adoption of the operation for quick delivery in eclampsia. Carl Braun had stated the convulsions usually stopped after delivery. Duhrssen claimed this result in 94 per cent and Ohlshausen in 85 per cent. What more natural than that Caesarean, an easy quick operation, should look attractive when accouchment force and high forceps had become discredited.

Caesarean for eclampsia has accounted for a mortality of 16 per cent in well-equipped maternities in Great Britain, and 32 per cent in the country at large (Fitzgibbon). At the Rotunda, where they do not Caesareanize, the death rate for twenty years under their conservative method of treatment has been only 8 per cent. Equally good results are reported from many sources. In view of these facts, it is high time for Caesarean section as routine treatment for eclampsia during the height of the toxaemia to be frowned upon. Next the operation was seized upon for the solution of almost every obstetric difficulty, and the dire results are shown in Doctor Maxwell's figures.

Distocias, due to faulty rotation, like deep transverse arrest, are too often treated by section. I find with the Kielland forceps their handling from below is usually easy and safe.

I believe, with careful judgment, the indications for Caesarean section may be broadened to include many cases of placenta previa.

The indications in pelvic obstruction as outlined in Doctor Maxwell's paper are sound in every particular, and should be carefully studied and adhered to.

I wish to put in a word for the low Caesarean, which, I believe, has many advantages over the classical variety. If it is safer in the presence of infection, it is to be preferred in all cases, for if 50 per cent of all Caesareans are attended with a febrile puerperium, as is generally stated, the possibility of infection must always be conceded. Furthermore, the dictum "once a Caesarean, always a Caesarean" need not be urged for the low operation. There is no more danger of future rupture than there is after vaginal hysterotomy.

CLASSIFICATION AND RESULTS OF TREATMENT OF HAY-FEVER *

By FRANK R. MENAGH, M. D., *Detroit, Mich.*, AND GEORGE M. FISTER, M. D., *Brigham, Utah*

(*From the Department of Cutaneous Medicine, Henry Ford Hospital, Detroit, Michigan*)

A study of 190 patients with allergic coryza.

Patients with vaso-motor rhinitis and non-seasonal hay-fever are in most cases sensitive to food or animal emanation proteins.

The intradermal is more reliable than the cutaneous method for testing sensitiveness.

A patient not sufficiently relieved by pre-seasonal treatment should be treated through the season, and the following year the patient should receive an increased amount of pollen extract.

OUR object in presenting this paper is first, to classify the patients referred to the department because of symptoms of hay-fever; second, to give the results of our treatment.

By hay-fever we mean allergic coryza caused by pollens, which indicates a hypersensitive reaction on the part of the patient to pollen protein. Cooke designates by the term "allergic coryza" that symptom complex which arises from a hypersensitiveness of the mucous membrane of the upper respiratory tract and usually of the eye.

Vaso-motor rhinitis, a term commonly used, merely refers to a pathological condition, and when these patients are studied, most are found hypersensitive to proteins. Hansel, in a group of one hundred cases of non-seasonal vaso-motor rhinitis, found approximately half of them to be sensitive to various proteins.

Dunbar, in 1905, was the first to use plant pollen in the treatment of hay-fever. He attempted to pro-

*Presented at the 1924 Annual Meeting of the Utah Medical Association, Salt Lake.

duce an anti-toxin in the horse. Since that time the literature and work on protein sensitization has been most extensive, and has rapidly changed our conception of the etiology of hay-fever and asthma.

The natural result of such rapid advance has been considerable confusion. One of the questions presented is that of anaphylaxis. Is hay-fever an anaphylaxis phenomena? The view advanced by Coca seems most acceptable. The word "anaphylaxis" is reserved by him for those reactions produced in the human, or in the animal, after an artificial hypersensitiveness has been produced; while allergy applies to the reactions occurring in individuals naturally hypersensitive from the absorption of the specific protein. Anaphylaxis is a true antigen-antibody reaction. There is no proof that allergy is of this specific nature. This distinction is fundamental when considered from the standpoint of therapy. In anaphylaxis complete desensitization is always possible and perhaps permanent. In allergy desensitization is only partial, and has not been found to be permanent.

Because of this essential difference, Cooke proposed the word "hyposensitization" to distinguish the lessened sensitiveness induced in allergy from the state of desensitization in anaphylaxis. We have no definite knowledge of what actually takes place in the process of hyposensitization.

We have adopted a classification of coryza, combining those used by Cooke and Walker. This includes coryza of both allergic and non-allergic etiology. This paper does not consider any cases or study of the non-allergic coryza.

The role of calcium metabolism in hay-fever and other allergic conditions is of interest. Pottenger is of the opinion that in asthma particularly there is a calcium deficiency which makes the neuro-cellular mechanism hyperirritable. Novak and Hollander, in their study, conclude "that certain cases of hay-fever and asthma show a low blood calcium, but that calcium therapy alone does not influence these conditions." There is, however, a possibility that calcium thyroid and parathyroid metabolism may be definitely associated with protein sensitization.

We can dismiss the role of bacterial proteins as a cause of hay-fever in our cases, because we had no patients in whom absorption of bacterial proteins was proven to be the cause of the clinical symptoms. Autogenous vaccines were used in some cases with marked benefit, but we do not consider their action as allergic.

METHODS OF DIAGNOSIS AND TREATMENT

Diagnosis—The success or failure in treatment of hay-fever is naturally dependent on proper diagnosis as to causative agent. A careful history is of great assistance, giving as it does much important information as to the age of onset, duration, family history, seasonal character of symptoms, date of onset, etc. Most of the patients were between 20 and 40 years of age, while the duration of symptoms were in the largest percentage of cases from one to twenty years.

It is estimated that 10 per cent of all persons are sensitive to proteins, 1 per cent being sensitive to pollens. Of these, about 40 per cent (in our service 34.7 per cent) gave a history of direct inheritance of allergy. Fifty-two and one-tenth per cent gave a history of other allergic symptoms of asthma, eczema, and urticaria. A careful physical examination is always done. Special care is taken in the examination of the nose and throat, and any obstruction is cared for surgically. Hay-fever per se is not sufficient cause for intranasal surgery.

According to the history and date of onset of symptoms, the patients are grouped. The time of appearance of the predominating fall type of hay-fever is August 15, and it lasts until frost. The spring type lasts from approximately May 30 to July 20. The mixed group had symptoms of hay-fever both spring and fall.

The patients classified as non-seasonal had symptoms of hay-fever, but their time of appearance had no connection with the seasons. The potential group were patients sensitive to pollen, but who had no history of hay-fever. We had no patients with hay-fever due to tree pollen. None of the patients had history of onset of symptoms at time of pollination of trees. The time of hay-fever varies with the locality and time of pollination. Local botanical surveys are important in determining these factors, and the abundance of the various pollens.

Our methods in testing for sensitiveness to foreign proteins are both cutaneous and intradermal. Food and animal emanation proteins are usually applied by the cutaneous methods as follows: An abrasion is made by the Von Pirquet scarifier, and on this area is placed the dry protein extract. A drop of one-tenth normal sodium hydroxide is added, making a solution of the protein. If there are no indications other than a history of seasonal hay-fever, approximately fifteen to twenty cutaneous tests are applied. Where indicated, as in the non-seasonal hay-fever, as many as ninety cutaneous tests have been applied.

The intradermal method is carried out with a tuberculin syringe and a solution of the proteins, 2 minims of a 1-500 solution of the protein being used. It is introduced into the superficial layers of the skin. In male patients these tests are applied on the flexor surface of the forearm; female patients, the anterior aspect of the thigh. We have found that the intradermal method will often give a positive reaction when the cutaneous test is negative. A positive test with either method is indicated by the appearance of an urticarial wheal with pseudopos. In reading our results, we have found that it is impossible to adhere to any fixed rule with regard to the wheal reaction. One individual will give a wheal reaction of 1½ cm. in diameter and with no pseudopos, while another individual, no more liable to develop symptoms from the same group of pollens, will give a 3 cm. wheal reaction with numerous pseudopos.

We have found that it is a valuable criterion to distinguish between the various tests made, and the proteins to which the patients does not react acting as controls. Where numerous tests are applied in a very sensitive individual, considerable reaction may appear both general and local. When this does occur, the prompt administration of adrenalin in amounts up to 2 cc. (intravenous if necessary) will usually prevent any serious consequences; although Lamson has recorded two deaths from the intradermal protein tests.

The pollen, or proteins, to which the patients show the greatest amount of reaction are the ones most apt to give symptoms. Naturally, wind-borne pollens are usually at fault. Nevertheless, patients at times show definite hay-fever reactions to pollens, not wind-borne, from which they come in contact, such as that of dandelion, goldenrod, and rose.

It is important that all pollens to which the patient reacts should be known, as the treatment with one pollen does not protect against another, in spite of the frequent statements to the contrary. As Bernton has shown in such a closely related group as the short and giant ragweeds, treatment with one does not give protection against the other. Of our 130 cases of fall hay-fever, all except one reacted to pollen of the short ragweed. In all but one case, ragweed pollen, either alone or in conjunction with other pollens, was used for treatment of this group.

The spring hay-fever in this vicinity is largely due to timothy, June grass or red-top pollens. The mixed group is a combination of both spring and fall pollens.

METHOD OF TREATMENT

In our treatment of the patients with hay-fever (seasonal allergic coryza) we have depended entirely on hyposensitization with the pollen extract. From the clinical data and sensitization tests the pollens responsible for the patient's hay-fever are determined, and extracts are used for treatment.

We offer nothing particularly new, but suggest simplicity in the treatment of hay-fever patients. Success of treatment can best be judged by clinical results and the patient's eagerness to return for therapy each season. In 1921, twenty-one patients were treated for seasonal hay-fever. Of this number, eleven, or 52 per cent, returned for treatment in 1922 and the same number again in 1923. In 1922, a total of forty patients were treated. Of this number thirty-one, or 77 per cent, returned for treatment in 1923, and most of these patients are again returning for treatment in 1924. When we consider many patients probably left the city and some were referred to their local physician for treatment, the percentage of returned patients is unusually high. There were no "cures." The freedom from hay-fever, as produced by hyposensitization with protein extract, is only temporary. Protein treatment must be resumed each season. It is possible that continued pre-seasonal treatment may develop a partial permanent tolerance for the offending pollen proteins.

To date we have used the acetone insoluble residue of the pollens in making our extracts. This season, 1924, we are using the method described by Coco. It is beyond the purpose of this paper to discuss the various methods of preparation of the extract. However, in order to obtain satisfactory clinical results it is absolutely necessary that one know the strength of the solutions used, graduated to an adopted standard. The nitrogen standard basis, assuming necessary precautions are taken to prevent deterioration of the extract, has many advantages, and more accuracy in dosage is possible.

In the cases reported we attempted to simplify the treatment and conserve the time of the patient by starting treatment with a 1:10,000 dilution of the pollen extract. A 1:100 solution of the pollen extract is prepared by taking 0.1 gram of the acetone insoluble residue in 1 cc. of normal saline to which is added a drop of creosote. From this solution, strengths of 1:500, 1:1000, 1:5000 and 1:10,000 are prepared by addition of the indicated amounts of normal saline.

It has been our experience that it is perfectly safe and reasonable to treat patients with more than one pollen extract, if indicated.

The average initial dose in treatment has been 0.3 of a cubic centimenter of the 1:10,000 pollen extract solution. The dose is increased according to the patient's tolerance. If reactions occur, no increase in the amount of pollen extract is given at the next treatment. Adrenalin given with the pollen extract does not affect the success of the treatment. We have considered no patient sufficiently treated who has not received at least one subcutaneous injection of 0.5 cc. of the 1:100 pollen extract. The average number of injections required to reach this maximum injection was ten. We have no severe general or local reactions. Minor reactions of urticaria, hay-fever, or asthma were controlled by adrenalin.

The fall group of patients being the larger in number, the results can be considered a better average.

The best method of treatment is pre-seasonal, finishing the course of injections at the approximate date of beginning of hay-fever season. If the patient is not fully relieved, the treatment should be continued through the pollen season. Patients who appear for treatment during the season are treated in the same manner, except the dose of pollen extract used is smaller and the increase in amount is less rapid. It is surprising the amount of relief these patients receive from this seasonal treatment. If a patient treated pre-seasonal does not have sufficient relief, we continue the treatment throughout the season.

In regard to the patients classified as potential hay-fever subjects, no treatment was indicated. It is very possible, however, that most of these cases would develop clinical hay-fever if they came in contact with sufficient of the offending pollens. As long as their environment prevents this, and the local resistance in the upper respiratory tract is not lowered, they will probably continue to be free of hay-fever symptoms. The group of patients with symptoms of hay-fever, due to foods and animal emanation, were not treated. Hay-fever of this nature is best illustrated by case histories.

CASE A. F.—Came for relief of frequent head colds and marked sneezing. The spells of sneezing were most frequent and distressing at time of arising in the morning. Sensitization tests were negative to pollens, but were markedly positive to chicken feathers, goose feathers, and dog hair. Removal of contact with feather pillows gave relief. Hyposensitization should be considered if symptoms continue to the point of uncomfortableness.

CASE A. C.—Woman, age 50. Was first seen in the nose and throat department because of a persistent vasomotor rhinitis, with irritating nasal discharge. Protein sensitization tests were entirely negative, except for a characteristic reaction to the intradermal test with whole milk protein. Patient discontinued the use of milk and milk products, with complete relief. These illustrate well

allergic coryza due to proteins of foods or animal emanation.

One of the most interesting cases in the potential group of hay-fever patients was referred because of epilepsy (we have carried out protein sensitization tests on a large number of these patients). This patient was sensitive to ragweed, timothy, several food and animal emanation proteins. In this case patient had an attack of grand mal immediately after the sensitization test. Since removing contact with the positive proteins, however, this patient had only one light attack over a period of two months.

Further case histories are given to illustrate the other groups:

CASE A. M.—Boy, age 15, appeared with hay-fever symptoms of three days' duration, with no previous hay-fever. Protein sensitization tests were negative, except for dandelion. No treatment was given, except instructions to avoid contact with dandelion. No further hay-fever occurred.

CASE J. M.—Male, age 70. Hay-fever of twelve years' duration, sensitive to ragweed and rye. Treatment was completed June 25, a date too early to afford protection against fall hay-fever. Patient returned August 20 with hay-fever.

CASE W. E.—Fifty-five years old. Active pulmonary tuberculosis. Hay-fever of twenty years' duration, sensitive to ragweed and timothy pollen. Had better than 75 per cent relief. There was no aggravation of pulmonary condition, although patient had reaction to one or more treatments, with resulting generalized urticaria.

CASE J. S.—Fall hay-fever, sensitive to ragweed pollens. Came to clinic August 1. Stated he had finished treatment elsewhere this year for fall hay-fever. Gave a marked local reaction with generalized symptoms of hay-fever to an intradermal injection to 0.2 minim of 1:1000 solution of ragweed, which indicated treatment had not been completed.

SUMMARY AND CONCLUSION

1. A study of 190 patients with allergic coryza is presented.

2. The predominating type of hay-fever found in this vicinity is of the fall type, and in practically all cases due to the pollen of the short ragweed.

3. Patients with vaso-motor rhinitis and non-seasonal hay-fever are, in most cases, sensitive to food or animal emanation proteins.

4. Pre-seasonal treatment is the method of choice.

5. The intradermal is more reliable than the cutaneous method for testing sensitiveness. A 1:500 dilution extract was used.

6. Treatment has been with the acetone insoluble extract of the pollens.

7. It is fair to consider from the results obtained with the treatment of these patients that any patient correctly diagnosed as to the offending pollen and fully treated, receiving a maximum injection of 0.5 cc. of a 1:100 dilution of the pollen extract (1/200 gm.) can be assured of relief. In our largest number of cases, the fall hay-fever group, 82 per cent obtained over 75 per cent relief. Of this same group, 46.8 per cent were given over 90 per cent of relief.

A patient not sufficiently relieved by pre-seasonal treatment should be treated through the season, and the following year the patient should receive an increased amount of pollen extract.

SOME FEARS OF ENDOCRINE ORIGIN

By EDWARD HUNTINGTON WILLIAMS, M. D., *Los Angeles*

Whatever the mechanism involved in their production, the goal of what may be termed physical type of fears is the same, namely, the fear of death or bodily injury.

We are still in the stage of modified empiricism—of "scientific guessing," if you please—but a condition that frequently is the forerunner of actual scientific deduction and application.

DISCUSSION *by Harold W. Wright, San Francisco; F. S. Marnell, Stockton; H. Lisser, San Francisco; Clifford A. Wright, Los Angeles.*

IN OUR modern conception of the causes of disease, to speak of "endocrine" fears seems tautological, since fears, like the other emotions, are so intimately dependent upon the ductless glands. Moreover, the single word, "fear," is far too comprehensive a term, except as indicating a general group of conditions. For example, diffidence is undoubtedly a form of fear; so, also, is the sensation one experiences when his auto skids. The bashful boy is distressed and afraid in the presence of a single stranger, and he is afraid in the presence of impending death, as in the case of the skidding auto. But it is difficult to reconcile the idea that the same set of emotion-making anatomical structures are involved in producing these widely divergent sensations. Probably the same set of structures are involved, but all of them cannot be involved to the same degree in each instance.

I think we have very precise evidence of this in certain cases of morbid fears in which the state of the blood pressure is a symptom. We have the high tension, fearful misgivings of certain individuals, and the low-tension, depressed forebodings of another type. Both of these individuals are correctly referred to as fearful and afraid, according to our present conceptions. Indeed, their ultimate mental reactions may be almost identical. Yet it is highly improbable that the mechanisms producing these reactions are the same.

It may be pointed out that, whatever the mechanisms involved in their production, the goal of what may be termed physical type of fears is the same, namely: the fear of death or bodily injury. Such is not the case with the bashful or diffident. Often it is not the case in persons who have a fear of open spaces or closed-in places, or a hundred other morbid fears, which really do not threaten or portend death or bodily pain, and which the afflicted person may recognize as having no such import. And yet these sensations obtrude themselves, even though ruled out by reason. In such cases, it seems to me, a very different gland mechanism is at work from these cases where there is a normal fear of an actual danger. It is almost self-evident. But in most cases of this kind it is not always possible to put our finger on the exact location of the focus of the trouble, although our recent advances in endocrine knowledge is an earnest that presently we shall be.

I have had under observation and treatment for some little time several patients whose symptoms and response to treatment suggest that the cause of their fears is of pituitary origin—or, at least, that they are not the type of fears that one expects from